

AMENDMENTS

In the claims:

Claims 1-19 (Canceled).

20. (New) A method for measuring a distance to an object, comprising:
producing a first image of the object using a first camera;

producing a second image of the object using a second camera spaced apart from the first camera along a common baseline and having a different viewing angle than the first camera, the second camera having a resolution that is greater than the resolution of the first camera such that pixel units of the image produced by the first camera represent a greater amount of the object than pixel units of the image produced by the second camera;

producing a set of sampled images, each of the sampled images being produced by sampling pixels of the second image at given intervals beginning at respective different locations in the second image for each sampled image;

calculating a set of distances to the object corresponding to the set of sampled images, each distance being calculated based on the positions of the cameras on the common baseline, the directions of the first and second cameras with respect to the common baseline, and the locations of a common point on the object in the first image and the respective sampled image;

calculating a set of indexes, each respective index being representative of the degree of appropriateness of a distance corresponding to one of the sampled images; and

selecting one of the respective distances to the object based on the index associated with its corresponding sampled image.

21. (New) The method claimed in claim 20, wherein the second image is interpolated prior to producing the set of sampled images.

22. (New) The method claimed in claim 20, wherein the index corresponding to a sampled image represents the difference between a pixel value of the sampled image and a pixel value at a corresponding pixel of the first image.

23. (New) A method for measuring a distance to an object, comprising:
producing a first image of the object using a first camera;

producing a second image of the object using a second camera spaced apart from the first camera along a common baseline and having a different viewing angle than the first camera, the second camera having a field of view that is less than the field of view of the first camera such that pixel units of the image produced by the first camera represent a greater amount of the object than pixel units of the image produced by the second camera;

producing a set of sampled images, each of the sampled images being produced by sampling pixels of the second image at given intervals beginning at respective different locations in the second image for each sampled image;

calculating a set of distances to the object corresponding to the set of sampled images, each distance being calculated based on the positions of the cameras on the common baseline, the directions of the first and second cameras with respect to the common baseline, and the locations of a common point on the object in the first image and the respective sampled image;

calculating a set of indexes, each respective index being representative of the degree of appropriateness of a distance corresponding to one of the sampled images; and

selecting one of the respective distances to the object based on the index associated with its corresponding sampled image.

24. (New) The method claimed in claim 23, wherein the second image is interpolated prior to producing the set of sampled images.

25. (New) The method claimed in claim 23, wherein the index corresponding to a sampled image represents the difference between a pixel

value of the sampled image and a pixel value at a corresponding pixel of the first image.

26. (New) An apparatus for measuring a distance to an object, comprising:

a first camera for producing a first image of the object;

a second camera for producing a second image of the object, the second camera being spaced apart from the first camera along a common baseline and having a different viewing angle than the first camera, the second camera having a resolution that is greater than the resolution of the first camera such that pixel units of the image produced by the first camera represent a greater amount of the object than pixel units of the image produced by the second camera; and

a data processing section performing processing comprising:

producing a set of sampled images, each of the sampled images being produced by sampling pixels of the second image at given intervals beginning at respective different locations in the second image for each sampled image;

calculating a set of distances to the object corresponding to the set of sampled images, each distance being calculated based on the positions of the cameras on the common baseline, the directions of the first and second cameras with respect to the common baseline, and the locations of a common point on the object in the first image and the respective sampled image;

calculating a set of indexes, each respective index being representative of the degree of appropriateness of a distance corresponding to one of the sampled images; and

selecting one of the respective distances to the object based on the index associated with its corresponding sampled image.

27. (New) The apparatus claimed in claim 26, wherein the second image is interpolated prior to producing the set of sampled images.

28. (New) The apparatus claimed in claim 26, wherein the index corresponding to a sampled image represents the difference between a pixel value of the sampled image and a pixel value at a corresponding pixel of the first image.

29. (New) An apparatus for measuring a distance to an object, comprising:

- a first camera producing a first image of the object;

- a second camera producing a second image of the object, the second camera being spaced apart from the first camera along a common baseline and having a different viewing angle than the first camera, the second camera having a field of view that is less than the field of view of the first camera such that pixel units of the image produced by the first camera represent a greater amount of the object than pixel units of the image produced by the second camera; and

- a data processing section performing processing comprising:

- producing a set of sampled images, each of the sampled images being produced by sampling pixels of the second image at given intervals beginning at respective different locations in the second image for each sampled image;

- calculating a set of distances to the object corresponding to the set of sampled images, each distance being calculated based on the positions of the cameras on the common baseline, the directions of the first and second cameras with respect to the common baseline, and the locations of a common point on the object in the first image and the respective sampled image;

- calculating a set of indexes, each respective index being representative of the degree of appropriateness of a distance corresponding to one of the sampled images; and

selecting one of the respective distances to the object based on the index associated with its corresponding sampled image.

30. (New) The apparatus claimed in claim 29, wherein the second image is interpolated prior to producing the set of sampled images.

31. (New) The apparatus claimed in claim 29, wherein the index corresponding to a sampled image represents the difference between a pixel value of the sampled image and a pixel value at a corresponding pixel of the first image.